

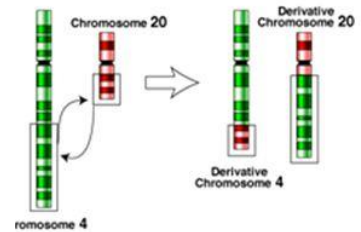
Unit 6 Topic 3.2 (Mutations)

- A mutation that occurs in the gametes of an organism will most likely be transferred to which of the following?
 - The siblings of the organism
 - The offspring of the organism
 - The other organisms living nearby
 - The mating partner of the organism
- Sickle-shaped red blood cells result from a mutation in the gene that codes for hemoglobin. This mutation results in sickle-cell anemia. A partial sequence of bases from a normal hemoglobin gene and a sequence that results in sickle-cell anemia are shown below. What type of mutation is depicted in this sequence?

Normal hemoglobin: T-G-A-G-G-T-C-T-C-C-T-C
Sickle-cell hemoglobin: T-G-A-G-G-T-C-A-C-C-T-C

- Substitution
 - Insertion
 - Deletion
 - Frameshift
- Which statement best describes the relationship that exists among proteins, DNA, and cells?
 - Proteins combine to produce cells, which produce DNA.
 - Proteins are made up of DNA, which determines the cells that are produced.
 - DNA is made up of proteins, which tell a cell how to function.
 - Cells contain DNA, which controls the production of proteins.

- The diagram shown pictures what type of mutation?
 - Inversion
 - Deletion
 - Duplication
 - Translocation
- With a normal DNA sequence of GCA-TAA, which of the following is a shift mutation, and what type of frame shift mutation is shown?
 - GGA-TAA; Deletion
 - GCT-ATA-A; Insertion
 - ACA-TAA; Substitution
 - None of the above
- Which of the following mutations will have the smallest effect on the resulting polypeptide?
 - A nonsense mutation
 - A missense mutation
 - An insertion
 - A silent mutation



frame

Original DNA Sequence: T A C A C C T T G G C G A C G A C T ...
mRNA Sequence: _____
Amino Acid Sequence: _____

Mutated DNA **Sequence #1** T A C A T C T T G G C G A C G A C T ...
 What's the **mRNA** sequence? _____ (Circle the change)
 What will be the **amino acid** sequence? _____
 Will there likely be effects? _____ What type of mutation is this? _____

Mutated DNA **Sequence #2** T A C G A C C T T G G C G A C G A C T ...
 What's the **mRNA** sequence? _____ (Circle the change)
 What will be the **amino acid** sequence? _____
 Will there likely be effects? _____ What type of mutation is this? _____

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